



Future Arrangements for an Australian Science and Technology Council

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INTERIM AUSTRALIAN SCIENCE AND TECHNOLOGY COUNCIL (ASTEC)

FUTURE ARRANGEMENTS FOR AN
AUSTRALIAN SCIENCE AND TECHNOLOGY COUNCIL

REPORT TO THE PRIME MINISTER

November 1976

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INTERIM AUSTRALIAN SCIENCE AND TECHNOLOGY COUNCIL (ASTEC)

19 November 1976

Dear Prime Minister,

Earlier this year you reconstituted the Interim Australian Science and Technology Council (ASTEC) and requested it to prepare a definitive report to assist the Government in its decisions on the long term future of ASTEC.

We have the honour to present the report of the Interim Council on these matters. This has been prepared following extensive deliberations of the Interim Council, a review of over one hundred submissions, and discussions with representatives of a large cross-section of the relevant community.

The main recommendations of the report are that:-

- . there should be an independent advisory science and technology council established permanently;
- . the council should be a statutory body; and
- . it should report to you.

Yours sincerely,

J.A.L. Matheson

J.A.L. Matheson
(Chairman)

For and on behalf of

Professor G.M. Badger
Dr. L.W. Davies
Mr. A.W. Hamer
Mr. A.H. Parbo
Professor J.A. Passmore
Sir Rutherford Robertson
Professor E.G. Saint

Professor R.O. Slatyer
Mr. K.C. Stone
Professor R. Street
Sir Colin Syme
Mr. W.J. Vines
Mr. J.G. Wilson

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RECOMMENDATIONS

ESTABLISHMENT

- R1 The Interim Council recommends that the
(2.1.4) Australian Science and Technology Council be established as a permanent advisory committee to the Government. The acronym 'ASTEC' is now widely known and should be retained as the abbreviated title of the Council.

TERMS OF REFERENCE

- R2 The function of the Council will be to advise
(2.2.7) the Government on any matter relating to science and technology in Australia, including:

1. the advancement of scientific knowledge and the development and application of science and technology in relation to the national well-being;
2. the adequacy, effectiveness and overall balance of the national effort in science and technology in government, industry, education and other sectors of the community;
3. the assessment of gaps and overlaps in science and technology;
4. the identification and support of new areas of science and technology likely to be of national importance;
5. the practical development and application of research discoveries; and
6. means of improving efficiency in the use of resources related to science and technology.

The Council should not have executive responsibilities, although it should be free to comment on operational arrangements when necessary.

FIRST TASK

- R3 The first task of the Council should be the
(2.3.3) preparation of a report on Australian science and technology to be completed within one year. The report could be entitled 'Science and Technology in Australia-1977' to establish it clearly as the first of a series.

STATUS

- R4 ASTEC should report to the Prime Minister.
(3.1.4)

- R5 ASTEC should be established as a statutory
(3.1.11) body (not a corporation), and the Administrative Arrangements Order should provide that the Minister for the purpose of the legislation be the Prime Minister. Pending the passage of the legislation ASTEC should operate under the arrangements existing for the Interim Council.

MEMBERSHIP

- R6 Members should be appointed part time on the
(3.2.6) basis of their ability to contribute to the work of the Council and not as representatives of particular interest groups. They should also be prepared to make a substantial contribution of time.

- R7 ASTEC should have a membership of up to
(3.2.9) fifteen, including the Chairman.

- R8 The first appointments to the permanent
(3.2.11) Council, apart from the Chairman's, should be equally divided into two-, three-, and four-year appointments and subsequently the term of appointment should be three years.

- R9 Members should be eligible for reappointment
(3.2.12) for one further term.

- R10 The length and terms and conditions of the
(3.2.14) Chairman's appointment should be negotiable to accommodate as far as possible the wishes of the prospective appointee, while at the same time taking cognisance of the demands associated with the position. It is considered that the Chairman will need to devote at

least half his time to the duties of the office.

- R11 The Chairman's appointment should carry
(3.2.15) status comparable to that of Permanent Heads in the Commonwealth Public Service.

WORKING ARRANGEMENTS

- R12 ASTEC should have the authority and resources
(3.3.1) to establish ad hoc working parties drawing on persons external to the Council and to engage extra assistance when needed, within the constraints of its own budget and subject to the normal procedures of government.

THE SECRETARIAT

- R13 Staff should be engaged under the Public
(3.3.2) Service Act, provided the necessary flexibility can be accorded the Council in drawing on staff from sources both internal and external to government and on various bases as to tenure.

ACCESS TO THE COUNCIL'S WORK

- R14 To the greatest extent possible, consistent
(3.3.8) with national security and governmental prerogative, the work of the Council should be published and available to interested parties.

COMMUNICATIONS WITH GOVERNMENT

- R15 Particular departmental affiliations and
(3.3.16) attendance at meetings of the future Council should be continued but will vary according to circumstances. It is recommended that attendance at meetings of ASTEC should be a matter for the decision of the Council itself.

CHAPTER 1

HISTORY AND PERSPECTIVE

1.1 On 29 April 1976 the Prime Minister announced in Parliament that he had accepted the course of action proposed by the small Advisory Group which had been formed on 9 February 1976 to advise on matters connected with the Interim Australian Science and Technology Council (ASTEC). The Members of the Advisory Group were Sir Louis Matheson (Chairman), Sir Rutherford Robertson, Sir Colin Syme, Professor G.M. Badger and Professor R. Street.

1.2 The Advisory Group recommended the continuation of ASTEC with changed membership and described the first task of the reconstituted ASTEC as the preparation of a report on the future arrangements for a science and technology council. This recommendation was accepted, as was the suggestion that the report should be made to the Prime Minister before the end of 1976. The Advisory Group's report is reproduced at Attachment 1.

1.3 To put these developments in perspective, it is necessary to recount the origins of ASTEC. The body came into being as a result of a Cabinet decision of the previous Government in January 1975, following the recommendations of the O.E.C.D. review of Australian science and technology in 1974. An earlier science council, the Advisory Committee on Science and Technology (ACST) had been established by the former coalition Government in April 1972. This group met for the first time in October 1972, and was disbanded in February 1973 following the change of government.

1.4 The 1975 Cabinet decision to create ASTEC included approval for the publication of a White Paper entitled 'Science and Technology in the Service of Society - The Framework for Australian Government Planning' which provided a formula for the creation of a science council and a method of advising and reporting to the Government through a Ministerial Committee.

1.5 The above-mentioned Cabinet decision also included authority to make the Council the subject of an Act of Parliament and draft legislation was prepared, although not finally approved by Cabinet before the change of government in 1975.

1.6 The reconstituted ASTEC held its first meeting on 9 June 1976. The revised membership list is reproduced at Attachment 2. Monthly Council meetings and several sub-committee meetings have been held since that time. At the first Council meeting it was decided to advertise for submissions on the longer term arrangements for a science council; the advertisement issued is at Attachment 3. Over 100 submissions were received and an account of these is contained in Appendix 1.

1.7 The Chairman also held discussions with heads of relevant departments and committees and made a large number of visits to scientific and related establishments to inform himself on the present infrastructure of science, both government and non-government, and to enable the informal presentation of views on matters of science policy.

1.8 While the reconstituted ASTEC took action to discharge its principal charter of preparing a report to the Prime Minister on the future it decided, at the same time, to advance those previous initiatives in which material progress had been made in 1975 and to which some commitment was felt to exist. It was however realised that the Council's capacity to advance these tasks would be limited in the light of its main priority of reporting on its future. Although a number of task forces was formed by ASTEC in 1975, significant progress had been achieved only in reviews of marine and health science in Australia. These had reached the stage where draft reports were available. Some progress has been made in each of these areas in 1976 although the work has not been taken to a conclusion.

1.9 Several issues had been referred to ASTEC for consideration during 1975. A list of these referrals, and progress with each, is provided in Attachment 4. Events have now overtaken some of the 1975 referrals and others must await further developments. Additional

references have been made since ASTEC's reconstitution in 1976 and information about these referrals is also provided in Attachment 4.

1.10 One of the principal constraints on ASTEC's consideration of matters referred to it has been the absence of an overview of Australian science and technology; each of the particular issues needs to be put in proper perspective by relating it to the wider science and technology scene in Australia. This consideration is elaborated further in paragraphs 2.1.8 to 2.1.10, in the context of the broad approach adopted by ASTEC and the future strategy which is recommended for the Prime Minister's consideration.

CHAPTER 2

ASTEC'S OBJECTIVES AND THEIR ACHIEVEMENT

2.1 A PERMANENT ASTEC - THE BROAD ROLE ENVISAGED

2.1.1 It is clear from the submissions received and the discussions held that there is a consensus on many of the issues examined by the Interim Council. This included the need for an advisory body for science and technology whose independence and prestige is indisputable and which is able to report effectively at a high level to government.

2.1.2 Some expectations for such a body are unrealistic and it will clearly not be possible for the Council of the future to satisfy all of the hopes and aspirations of the interested community. However, due weight should be given to the expressed opinions of well-informed people that more knowledgeable co-ordination, and a clearer understanding in government circles of the value to be obtained from science and technology, are necessary.

2.1.3 The concept of a science policy council, as a mechanism for providing science policy advice, is the most commonly accepted machinery in overseas countries similar in socio-economic structure to Australia. In some countries the councils have both an advisory and an executive role, in others a purely advisory function. The majority view in submissions was that the ASTEC of the future should be advisory in function. The Interim Council shares this view. There is a need for the Government to be advised at the broadest strategic level. Australia's machinery of government is such that, at the executive level, Australia is already well served by a range of departments and agencies capable of managing science and technology according to government policy. The Interim Council has noted the views of the Royal Commission on Australian Government Administration on the question of improving co-ordination among government science establishments. It would be appropriate for the future

Council to examine and advise on these proposals.

R1 2.1.4 The Interim Council recommends that the Australian Science and Technology Council be established as a permanent advisory committee to the Government. The acronym 'ASTEC' is now widely known and should be retained as the abbreviated title of the Council.

2.1.5 The success of such an advisory council will inevitably depend to a large extent on the soundness of its advice and the extent to which the Government takes cognisance of that advice. ASTEC will not be an exclusive source of advice to the Government on science and technology. There will also be factors, additional to those considered by ASTEC, which the Government must take into account in reaching its decision on particular issues.

2.1.6 A valid role for the future Council includes consideration of appropriate policies for science and technology in Australia and advice to the Government on how science and technology can be used in achieving governmental policy objectives. Again the Interim Council has noted the recommendations of the Royal Commission on Australian Government Administration that government science establishments should compile reports to be reviewed, inter alia, by ASTEC, as part of the assessment of priorities in science and technology. While this would be a matter for the further consideration of the future Council, it is clear that the Council will need to establish effective relationships with the total range of government science, in addition to those areas within the Ministry of Science.

2.1.7 These matters of the future aside, it is widely recognised now that there is no overall co-ordination in Australia of science and technology and that a knowledge of gaps and overlaps in effort is not readily available. There is also no comprehensive plan to achieve the maximum benefits for the community from the investment in science and technology.

2.1.8 The Interim Council believes that the early identification of the salient features of the present system is urgent. This would subsequently be used by the Council to reach judgments about types and levels

of activity and their priorities in particular fields of Australian science and technology.

2.1.9 The Council's advice to the Government on priorities and balance of effort, if adopted, would inevitably influence the allocation of resources by the Government. A long-term, well-conceived strategy could be used by government departments and agencies, industry and the general scientific and technological community to facilitate forward planning. Where the Council perceives gaps in present machinery for funding it would recommend appropriate institutional changes. However, the Interim Council does not see the future Council itself assuming executive functions, for example in the granting of funds or the management of laboratories.

2.1.10 In simple terms, examples of the tasks to be discharged would include:

- . an assessment of science and technology in Australia with reference, inter alia, to gaps and overlaps in effort in the light of perceived needs and objectives;
- . a delineation of how well the effort appears to match those national objectives which are influenced by science and technology;
- . a forecast of future forms and desirable levels of scientific and technological activity in various fields;
- . an estimate of the resources needed to achieve these levels; and
- . the modification of priorities in science and technology taking cognisance of evaluation processes and changes in national objectives.

2.1.11 In summary, the Interim Council considers that ASTEC should advise the Government on the whole range of science and technology. It should report and recommend on issues either referred to it by Government or initiated by itself. It should not have executive responsibilities, although it should be free to comment on operational arrangements when necessary.

2.2 TERMS OF REFERENCE

2.2.1 It is necessary to consider terms of reference for the permanent Council appropriate to the role outlined above. The terms of reference under which the Interim Council operates at present are contained in paragraph 4 of Attachment 1. It will be noted that specific reference to 'defence science' is at present included. The Interim Council has considered whether a specific reference is necessary, and has concluded that it is not, given that the future Council should advise on the whole range of science and technology.

2.2.2 The specific reference to 'defence science' was no doubt included in the Interim Council's terms of reference to ensure that the special security considerations attaching to science and technology in the defence area did not lead to their arbitrary exclusion from Council's consideration. Science and technology in the context of defence represent a significant proportion of the total Australian effort; any realistic and accurate assessment of priorities must take into account the utilisation of resources under the heading of defence. Security limitations are recognised but, at the level of detail required for broad policy formulation, are likely to create few difficulties. The role ASTEC would play was well expressed in the submission of the Permanent Head of the Department of Defence:

At present the Government does not have adequate machinery to assess what lateral benefits are likely to become available from its defence science effort, or what effect these potential benefits should have on its policies and actions concerning non-defence matters. By addressing those matters ASTEC should be able to advise the Government with good effect. Although some defence science tasks could not be publicly examined or reported on for national security reasons, much of defence science could be assessed for lateral benefits without impinging on the details which need to be safeguarded.

2.2.3 The other main area in which ASTEC's role may need definition is that of health science. Since the future Council should address the whole range of science and technology in Australia there is no case for the arbitrary exclusion of health science. This field also has close relationships with the social sciences and, as in the case of other areas of science and technology, will require the Council to seek special advice on the social implications of particular issues.

2.2.4 Whilst recognising that the Council should be mindful of the social implications of science and technology, and appreciating also that health science is to an increasing extent becoming involved in areas of research lying within the ambit of social and behavioural sciences, the Interim Council has nevertheless concluded that the social sciences as such should not be included in the purview of the permanent Council. A mandate to review the nation's endeavours in science and technology is in itself a formidable task, and the judgments that are to be made are rather different from those arising in the social science area. There will be many occasions when the Council will need advice from social scientists; this can be sought through consultation.

APPLICATION OF SCIENCE AND TECHNOLOGY

2.2.5 A number of the submissions stressed a particular concern in relation to the utilisation of science and technology for the achievement of national objectives. In particular, reference was frequently made to the alleged inadequacy in Australia of arrangements for converting research results into practical applications.

2.2.6 The Interim Council concluded that ASTEC should assess and advise on arrangements for the promotion of the practical application of Australia's research and development effort. Although the existing terms of reference can be interpreted to encompass this role, the Interim Council believes it warrants emphasis.

TERMS OF REFERENCE NOW PROPOSED

- R2 2.2.7 The terms of reference recommended as appropriate for the future operation of the Council are:

The function of the Council will be to advise the Government on any matter relating to science and technology in Australia, including:

1. the advancement of scientific knowledge and the development and application of science and technology in relation to the national well-being;
2. the adequacy, effectiveness and overall balance of the national effort in science and technology in government, industry, education and other sectors of the community;
3. the assessment of gaps and overlaps in science and technology;
4. the identification and support of new areas of science and technology likely to be of national importance;
5. the practical development and application of research discoveries; and
6. means of improving efficiency in the use of resources related to science and technology.

The Council should not have executive responsibilities, although it should be free to comment on operational arrangements when necessary.

2.3 THE BASIC FRAMEWORK

THE NEED FOR AN OVERVIEW REPORT

2.3.1 Reference has been made in paragraphs 2.1.8 to 2.1.10 to the tasks considered as the most urgent for the future Council. In order to provide its advice ASTEC will require a comprehensive picture of the

science and technology effort in Australia, both existing and proposed.

2.3.2 The Council would use this information to identify gaps and overlaps in the overall effort, make firm recommendations about future levels of activity across the full spectrum of science and technology and, with time, evaluate the success of the national science and technology programmes and advise the Government accordingly.

R3 2.3.3 It is therefore recommended that the first task of the Council should be the preparation of a report on Australian science and technology to be completed within one year. The report could be entitled 'Science and Technology in Australia - 1977' to establish it clearly as the first of a series. The time limit of one year has been deliberately chosen because the Interim Council believes that such a report is an urgent requirement.

2.3.4 The identification of, and formulation of solutions for, other tasks required by the Council will be greatly facilitated by the existence of the first and subsequent general review reports.

INFORMATION REQUIREMENTS AND SOURCES

2.3.5 The material for such a report will be obtained from many sources. Extensive discussions will be required with the scientific and technological community, public and private. Some statistical background information will be sought and will be combined with informed opinion to provide a balanced perspective for recommendations.

2.3.6 Council will collect information formally and informally from:

- . government departments and statutory authorities;
- . tertiary education establishments and the appropriate Commissions on tertiary education;
- . the Australian Academies and other learned

societies and professional associations;

- . government councils, boards and committees; and
- . industrial firms and organisations, trade unions, research associations and informed individuals.

2.3.7 Collection of information should not duplicate the work of the established agencies. These should be used by ASTEC wherever possible; in particular the Department of Science would have a clear role in this regard. However, Council members envisage a good deal of personal liaison with individual interest groups in both gaining an appreciation of the present and in arriving at judgments about the future.

2.4 OTHER TASKS

2.4.1 In addition to the preparation of general review reports, other tasks will also be required. These will fall into two main categories: advice on specific issues, and detailed studies of particular areas of interest.

2.4.2 The first general report will permit identification of those areas in which detailed studies should provide the greatest benefit. It will probably be advisable not to embark upon new studies of particular areas during 1977, although completion of those already well advanced might continue in parallel with the preparation of the overview report. Subsequently, the Council should be able to carry out a number of detailed studies each year. Some priority topics are already obvious, for example the balance between investment in government and industry research and development, and improved arrangements for technology transfer. However, before recommendations arising from these matters can be put into proper perspective, they will need to await completion of the first overview report.

REFERRAL OF SPECIFIC ISSUES

2.4.3 Although production of the first review will considerably enhance the ability of the Council to advise on specific issues referred to it, in the meantime the Council will need to rely on the combined judgment and experience of its members and of its ad hoc committees to provide advice on those issues.

2.4.4 The Interim Council concluded that it would be unwise to burden the permanent Council with too many specific issues until it had established an overall perspective. Nevertheless the Government, having established a permanent science council, will want to make use of it when problems arise on which the Council is suited to provide advice.

2.4.5 A more substantial problem in the longer term may be that the Council is suffocated with a plethora of requests for advice and information, many of which may well be inappropriate to the ambit of ASTEC; it would be undesirable if, for example, every government issue great or small touching on science was referred to the Council. Nevertheless it is important that key strategic issues be referred to ASTEC before substantive decisions are taken. The qualification 'strategic' is used advisedly. The Interim Council noted the continuing responsibility of the appropriate departments in dealing with the wide range of 'tactical' issues and, in particular, the role of the Department of Science in relation to those matters not within the specific province of the user departments.

2.4.6 The longer term problems referred to above will only be solved by effective communication between ASTEC and the Government. At times it may be necessary for the Council to state that a matter referred is inappropriate for ASTEC's consideration. Once the agreed role of ASTEC has been publicised, working relationships developed and the reputation of the Council established, it is envisaged that there will be little danger that an issue central to Australia's scientific and technological development is not brought to ASTEC's attention.

CHAPTER 3

MODUS OPERANDI

3.1 STATUS

TO WHOM THE COUNCIL SHOULD REPORT

3.1.1 The Interim Council noted that there is a strong body of opinion that ASTEC should report to the Prime Minister. The Interim Council recognised as valid the principle that ASTEC must have independence from any Minister and department having direct responsibility for science and technology. An essential feature of the Council's role will be to stand off, and be seen to stand off, from operational involvement in science and technology. It was also accepted that the importance of the future Council's broad advisory role was appropriate to the Prime Minister's portfolio.

3.1.2 The views of the Royal Commission on Australian Government Administration on the question of the ministerial focus for ASTEC were also noted. The primary recommendation was that ASTEC should advise the Prime Minister and a Ministerial Committee on Science. The Interim Council did not favour the formal institution of a Ministerial Committee because of the practical problems associated with establishing appropriate working relationships. The Interim Council also considered that there was some incompatibility between the Commission's proposition of science as a resource for all government activities and the arrangement suggested that a Minister for Science, or a Minister with a wider portfolio incorporating science, could be the ministerial link with ASTEC. The conclusion reached by the Interim Council was that the pervasiveness of science and technology required that ASTEC report to a Minister without specific responsibilities in this area.

3.1.3 Ministers whose portfolios have no direct connection with science are few. Alternatives to the

Prime Minister would be the Treasurer and the Minister for Administrative Services. Neither of these commended themselves as strongly as the present arrangement of reporting to the Prime Minister.

- R4 3.1.4 The Interim Council recommends that ASTEC should report to the Prime Minister.

A STATUTORY BODY?

3.1.5 The Council could operate either under its own Act of Parliament or as a non-statutory body attached to the Department of the Minister to whom it reports. An overwhelming majority of the scientific and technological community has expressed the opinion that ASTEC should be a statutory body.

3.1.6 It is a fact that independence is engendered to a considerable extent by an attitude on the part of the Council and by its membership outside government. However, statutory status actually confers, and perhaps more importantly gives the appearance of conferring, a considerable degree of autonomy and continuity of operation. Statutory status would, for example, be accepted widely as confirming the Government's continuing support for a permanent science council.

3.1.7 The attitude of the scientific and technological community is of no small importance; the Council must have the recognition of this community, and be able to rely on its co-operation and support. This will be easier to achieve if the Council is a statutory body. The Council of the future should also establish more effective relations with relevant public and private agencies if its functions are embodied in a statute.

3.1.8 To establish ASTEC as a statutory advisory body would not require incorporation with attendant additional cost. Staffing and other administrative services as a statutory body without corporate status can be provided from within the resources of the Department of the Minister to whom the Council reports. This is discussed in more detail in paragraph 3.3.2.

3.1.9 Independence and status are given by the Royal Commission on Australian Government Adminis-

tration as the broad considerations necessary for the creation of a statutory body. The Interim Council concluded that ASTEC's situation is in accord with the Royal Commission's findings in this area.

3.1.10 In the course of its work the Interim Council has developed a clear understanding of the role of the permanent Council and, if the present Report is accepted by the Government, would wish to accept the responsibility for briefing the Parliamentary Counsel.

- R5 3.1.11 The Interim Council recommends that ASTEC be established as a statutory body (not a corporation) and the Administrative Arrangements Order should provide that the Minister for the purpose of the legislation be the Prime Minister. Pending the passage of the legislation ASTEC should operate under the arrangements existing for the Interim Council.

3.2 MEMBERSHIP

MEMBERS' TASKS

3.2.1 The preparation of a general review, such as is proposed during 1977, requires more than a part-time body meeting once monthly. It is the view of the Interim Council that the necessary insights can only be achieved by an active programme of investigations in which members of Council are personally involved.

3.2.2 The difficulties implicit in an arrangement of this nature are fully appreciated. Members of Council will inevitably have a range of other commitments. With this in mind, the Interim Council considered at length a number of alternative arrangements for the Council.

3.2.3 The conclusion reached was that the only practicable arrangement would be a part-time Council, but with each member actively participating in the procurement and analysis of information, perhaps through the establishment of a series of internal committees with membership based on experience and interests.

3.2.4 In the opinion of the Interim Council, this approach will require a substantial commitment from the members. This should be made clear to, and be accepted by, future members of Council.

MEMBERSHIP COMPOSITION

3.2.5 Most of the submissions received referred to the need for a balanced membership drawn from academia, government and industry, and with a breadth of expertise across the science and technology spectrum, including persons competent to assess the general impact of science and technology on the community.

- R6 3.2.6 The view of the Interim Council was that the individual qualities of the prospective members should always be the paramount consideration in their appointment, and it is recommended that members should be appointed part time on the basis of their ability to contribute to the work of the Council and not as representatives of particular interest groups; they should also be prepared to make a substantial contribution of time. In selecting suitable individuals for membership consideration should be given to the balance of interests in the Council.

3.2.7 On the basis that membership of the Council is in a personal, and not a representative, capacity the Interim Council can see good reason for officers of government departments and agencies to be eligible for membership. In stating this view, the Interim Council recognises that all members of Council may from time to time have to acknowledge conflict of interest and withdraw from particular investigations.

3.2.8 The size of the Council must reconcile the magnitude of the tasks to be undertaken with the desire to limit the numbers to ensure operational efficiency and the cohesion of the group.

- R7 3.2.9 Taking into account the intention that individual members will engage in specific tasks and that periodic absences are inevitable, the Interim Council recommends a membership of up to fifteen, including the Chairman.

TENURE

3.2.10 The work of the Council will benefit from a progressive rotation of membership so that different perceptions and new initiatives will be brought to the Council. At the same time the long-term nature of the Council's role argues for a term of appointment which provides the necessary continuity, and assures each member the satisfaction of measurable achievement during a term of office.

- R8 3.2.11 To provide for continuity it would be desirable for members of the Council to be appointed for varying terms in the first instance. It is therefore recommended that the first appointments to the permanent Council, apart from the Chairman's, should be equally divided into two-, three- and four-year appointments and that subsequently the term of appointment should be three years.

- R9 3.2.12 It is also recognised that some members may be contributing so effectively to the work of the Council that it would be detrimental to lose their services at the completion of a first term; the Interim Council therefore recommends that members should be eligible for reappointment for one further term.

3.2.13 Arguments were presented both for a full-time and a part-time Chairman, although the strongest view expressed in the submissions was for a full-time appointment. The arguments advanced for full-time appointment are that the responsibilities are continuous and time demanding and require a strong interactive relationship with government departments and agencies in particular; Permanent Head status is recommended by many. The view is also advanced that the Council, rather than the secretariat, must be seen to be making judgments and offering advice. The principal arguments for part-time appointment were the obvious difficulties in securing the services of an appropriate person on a full-time basis, and the danger of confusion of roles arising between a full-time Chairman and the head of the secretariat.

- R10 3.2.14 The Interim Council believes that appointment of the most suitable person should be the paramount

criterion. To accord with this view it is recommended that the length and terms and conditions of the Chairman's appointment be negotiable to accommodate as far as possible the wishes of the prospective appointee while at the same time taking cognisance of the demands associated with the position. It is considered that the Chairman will need to devote at least half his time to the duties of the office.

- R11 3.2.15 The standing of the Council and the reputation of the Chairman should be such that the Chairman's appointment should carry status comparable to that of Permanent Heads in the Commonwealth Public Service and the Interim Council so recommends.

3.3 WORKING ARRANGEMENTS

- R12 3.3.1 The Interim Council believes that ASTEC must seek to liaise closely with, and obtain services and contributions from, relevant departments and agencies, the academies, professional institutes, industry councils, employees' associations, and tertiary education institutions; and in both the Commonwealth and State sectors, from the councils, committees and commissions whose responsibilities incorporate aspects of science and technology. The Interim Council also recommends that ASTEC should have the authority and resources to establish ad hoc working parties drawing on persons external to the Council and to engage extra assistance when needed, within the constraints of its own budget and subject to the normal procedures of government.

THE SECRETARIAT

- R13 3.3.2 It is essential that the Council have freedom in making its own staffing arrangements and this is an argument for the provision, under its own Act, for ASTEC to have the power to do this. However, it is recognised that engagement of staff under the Public Service Act has been utilised for a number of authorities similar in size and function to ASTEC, and the Interim Council recommends that staff should be engaged under the Public Service Act, provided the necessary flexibility can be accorded the Council in drawing on

staff from sources both internal and external to government and on various bases as to tenure. The Public Service Board has assured the Interim Council that such flexibility is possible under the Public Service Act.

3.3.3 Given the facility to engage advisors and establish ad hoc working parties, the secretariat to the Council need not be large, but it should be of high calibre with both administrative and analytical skills. It must be capable of providing competent secretarial services to the Council, its committees and working parties, demanding a considerable level of familiarity with the scientific, technological and bureaucratic environments. It must also be able to organise and manage the Council's investigatory, information and publication services.

3.3.4 The listing of the ASTEC Act in the Administrative Arrangements Order within the responsibilities of the Prime Minister will mean that the Council's secretariat will continue to be attached to the Department of the Prime Minister and Cabinet. Under these arrangements the secretariat is quite free to give direct support to the Council's activities, yet dependent on the Department for the usual range of management services.

ACCESS TO COUNCIL'S WORK

3.3.5 There are strong arguments for the Council to be as open as possible in the publication and distribution of its reports. The support of the relevant community will be of considerable importance to the effectiveness of the Council; to make use of this support will require an open approach to issues.

3.3.6 It would, however, be unrealistic to expect that the advice given to Government by the Council should become public information in all instances. Undoubtedly some issues under examination by the Council will require, for national security or other quite compelling reasons, a confidential approach.

3.3.7 There is also the question of timing the release of the Council's reports. Factors additional

to those pertinent to the Council's deliberations will weigh in the Government's decisions. The Council's recommendations may not always be accepted; and in any event there will normally be a delay before the Government is able to announce its decision.

- R14 3.3.8 In general, it should be a matter for the discretion of the Council to determine when, and in what capacity, it would be appropriate for interested parties to attend Council meetings and have access to Council papers and reports. The Interim Council recommends that, to the greatest extent possible, consistent with national security and governmental prerogative, the work of the Council should be published and available to interested parties.

PUBLICATIONS

3.3.9 The first and subsequent general review reports, which are to present the strategic position for the consideration of Government, will serve their purpose only if they encourage wide debate and acceptance of a broad strategy for Australia's scientific and technological development and application. They must therefore be accessible to the community and should normally be tabled in Parliament and given adequate distribution.

3.3.10 ASTEC will also, from time to time and usually on its own initiative, conduct detailed studies of particular areas of interest. Reports resulting from these studies should, in most instances, be circulated as discussion papers to the interested community to solicit responses to the views and proposals presented.

3.3.11 Reports by the Council on matters referred to it for advice will be, so far as the Council is concerned, confidential documents. Subsequent publication of such reports would be subject to the decision of the Prime Minister.

3.3.12 Annual reports reviewing the activities and achievements of the Council and providing the normal information associated with the Council's operations should be public documents and be tabled in Parliament.

COMMUNICATIONS WITH GOVERNMENT

3.3.13 As recommended in the Advisory Group's Report to the Prime Minister the Departments of Defence, Health, National Resources, Post and Telecommunications, Science and the CSIRO have had standing representation at meetings of the reconstituted Interim Council, with other departments and agencies being invited to participate as the need arose. The attendance of the Heads, or their representatives, has proved to be of substantial benefit to the Interim Council.

3.3.14 The Department of the Prime Minister and Cabinet has also been invited to send a representative to meetings of the Interim Council, an invitation which has been accepted on a number of occasions. This has complemented other communication channels between the Interim Council and the appropriate Divisions in the Department, and has proved useful in a number of specific instances in ensuring that the attitude of the Council is clearly understood by Departmental officers. It is appropriate for ASTEC and the Department with which it is affiliated to have a continuing exchange of relevant information about matters of common interest.

3.3.15 As the result of a number of representations, the Interim Council debated the appropriateness of extending the list of affiliations. The communications value of widening the group was recognised but concern was expressed about meetings becoming unwieldy. It was therefore decided to forward copies of Agenda and Minutes to a further group of departments and agencies which were invited to attend meetings of the Interim Council at which matters of mutual interest were being discussed.

R15 3.3.16 The Interim Council believes that similar arrangements should be continued by the future Council. However, particular departmental affiliations and attendance at meetings of the future Council will vary according to circumstances. It is recommended that attendance at meetings of ASTEC should be a matter for the decision of the Council itself.

REPORT TO THE PRIME MINISTER BY THE ADVISORY GROUP ON
THE AUSTRALIAN SCIENCE AND TECHNOLOGY COUNCIL

On 9 February 1976, you announced that you had asked us to advise you on the role of a Science and Technology Council, its terms of reference, and all other matters concerning its operation.

The Group met on March 3 and March 15, 1976. We now report to you as follows:

1. Following on your announcement of the formation of the Group, the Minister for Science, the Department of Defence and several other organizations submitted their views in regard to the Science and Technology Council (ASTEC). We believe there are others with a legitimate interest in the outcome of the Government's reexamination of ASTEC who would wish to express views if offered the opportunity. We think that such views should be sought and warrant careful consideration but we were faced with the problem that this process would mean the lapse of several months before we could make a report to you. We understand that you are anxious to receive an early report from us and we ourselves think that an early report is needed because, in the meantime, the Interim Council of ASTEC and its staff are unable to take any initiatives pending a statement of the Government's intentions. The reconciliation of these conflicting thoughts lead us to recommend to you an interim and short term course of action which would bring the members of the Advisory Group into ASTEC. This course is set out in the paragraphs which follow.
2. ASTEC should continue in being with the changes in membership and functions particularised below, but without change of name.
3. As soon as the Council resumes work with a revised membership, the Council should be asked to seek and consider written submissions by interested parties including Government Departments and Agencies,

particularly (but not solely) in relation to ASTEC's modus operandi. This should lead to a definitive report by the Council to you before the end of 1976.

4. We recommend that, for the time being, the Council be given as its terms of reference those set out in the press statement from your Office of 8 December 1975, the relevant part of which reads as follows:

'...the Australian Science and Technology Council will be absolutely independent. ASTEC will advise on the whole range of science and technology matters in Government and on the relations between the Government, universities and industry. The Council will be the major independent advisor to Government on such matters as:

- (1) The development and application of science and **technology to national needs and objectives.**
- (2) New areas of science and technology which are of importance to Australia, including fields of industrially and commercially oriented research and development.
- (3) The balance, adequacy and effectiveness of national efforts in various fields of science and technology, including defence science, and means for improving efficiency in the use of resources.
- (4) The relative importance of efforts in those fields of science and technology which may contribute to national economic and social development and welfare and to the advancement of scientific knowledge.
- (5) The effective development and utilisation of scientific and technological manpower.

As the problems of science involve all areas of Government, and are of the highest importance to Australia, ASTEC will report directly to the Prime Minister who will report to Parliament. The Council will be a body of the highest status and greatest independence.'

5. We believe that ad hoc committees and working parties will have to be used for specific tasks if and when the need arises in order to provide a wider range of experience than is possible from within the Council itself. Any reports by these committees should be discussed and approved for publication by the Council. Early publication of Council reports will in many cases be desirable in order to give an opportunity for comments from the scientific and the industrial community before firm decisions on policy are taken by Government. Before establishing a committee or working party the Council should obtain Prime Ministerial approval.
6. In order that the Council may be seen to be as fully independent as is reasonably practicable it should not have a special relationship with any department or ministry having a significant concern with scientific and technological research and development. For this reason we strongly recommend that the Council's Secretariat should be located for the time being within the Department of the Prime Minister and Cabinet and that Council should always report directly to the Prime Minister.
7. We consider that the Council's work should take cognizance of the programmes and policies of Commonwealth Government departments and agencies which are concerned with science and technology. We see a need for the Council to be constantly aware of the attitudes and opinions of such Departments. We believe that special arrangements should be made to foster mutual understanding of the work of the Council on the one hand and relevant Government Departments on the other. It is therefore recommended that the Permanent Heads concerned, or their representatives, should be invited to attend all meetings of the Council but without voting rights and without any responsibility for the Council's decisions. They should be able to participate freely in the discussions but be excluded from any presentation of the Council's decisions. These Departments and Agencies, which have a significant research and development budget, are:

Department of Defence
Department of Health
Department of National Resources
Department of Post and Telecommunications
Department of Science
and
C.S.I.R.O.

Other Departments and Agencies should be offered similar opportunities to participate as observers as the need arises.

8. The Council should take care not to engage in work already being handled in other ways, and should inform itself on the activities of other Government bodies dealing with science and technology matters, particularly bodies such as the Minerals Council, the Agricultural Council and the proposed Energy Council which have been established to co-ordinate Commonwealth and State Government policies.
9. We believe that the Council should consult with universities, academies and other relevant bodies with a view to establishing liaison on matters of mutual interest and to avoid duplication of effort. This contact should range from seeking expert advice to requests for studies to be undertaken, but any action involving financial cost should require prior Prime Ministerial approval.
10. Membership: We attach in a covering letter a panel of names for your consideration for membership of the new Interim Council.
11. Since our plan is that a fuller and more definitive report be made to you by the reconstructed Council by the end of 1976 in the expectation that the Government will then make long term decisions in regard to ASTEC, we recommend that the term of office of members of the reconstituted Council should be for one year only.

12. The question of legislation to establish the Council as a statutory body should be left in abeyance until the position is reviewed at the end of 1976.

Dr J.A.L. Matheson

Professor G.M. Badger

Professor Sir Rutherford Robertson

Professor R. Street

Sir Colin Syme

24 March 1976

INTERIM AUSTRALIAN SCIENCE AND TECHNOLOGY COUNCIL (ASTEC)

MEMBERSHIP

Sir Louis Matheson, K.B.E., C.M.G., (Chairman)
Formerly Vice-Chancellor of Monash University

Professor G.M. Badger, A.O., F.A.A.,
Vice-Chancellor, University of Adelaide
and President, Australian Academy of Science

Dr L.W. Davies, F.A.A., F.T.S.,
Chief Scientist, Amalgamated Wireless (Australia) Ltd
and Professor of Electrical Engineering,
University of New South Wales

Mr A.W. Hamer,
Managing Director, I.C.I. (Australia) Ltd

Mr A.H. Parbo,
Managing Director, Western Mining Corporation Ltd

Professor J.A. Passmore, F.A.H.A., F.A.S.S.A., F.B.A.,
Professor of Philosophy, Institute of Advanced Studies,
Australian National University

Sir Rutherford Robertson, C.M.G., F.A.A., F.R.S.,
Director, Research School of Biological Sciences,
Australian National University

Professor E.G. Saint, F.R.A.C.P., F.R.C.P.,
Dean, Faculty of Medicine, University of Queensland

Professor R.O. Slatyer, F.A.A., F.R.S.,
Professor of Biology and Head, Department of
Environmental Biology, Australian National University

Mr K.C. Stone,
Secretary, Victoria Trades Hall Council, and
Victorian Representative, A.C.T.U.

Professor R. Street, F.A.A.,
Director, Research School of Physical Sciences,
Australian National University

Sir Colin Syme,
Formerly Chairman of Broken Hill Proprietary
Co. Ltd

Mr W.J. Vines, C.M.G.,
Chairman and Managing Director,
Dalgety Australia Ltd

Mr J.G. Wilson, C.B.E.,
Managing Director,
Australian Paper Manufacturers Ltd

Professor Saint is an alternate for
Professor G.J.V. Nossal, C.B.E., F.A.A., Director
of the Walter and Eliza Hall Institute of Medical
Research who is overseas for twelve months.

22 June 1976

ADVERTISEMENT

INTERIM AUSTRALIAN SCIENCE AND TECHNOLOGY COUNCIL

The Interim Australian Science and Technology Council (ASTEC) was recently reconstituted and the first task of the Council will be the preparation by the end of 1976 of a definitive report to assist the Government in its decisions on the establishment of a permanent science and technology council. ASTEC operates in the interim on the following terms of reference taken from 'The New Government Policies' December 1975:

...the Australian Science and Technology Council will be absolutely independent. ASTEC will advise on the whole range of science and technology matters in government and on the relations between the government, universities and industry.

The Council will be the major independent advisor to government on such matters as:

- (1) The development and application of science and technology to national needs and objectives.*
- (2) New areas of science and technology which are of importance to Australia, including fields of industrially and commercially oriented research and development.*
- (3) The balance, adequacy and effectiveness of national efforts in various fields of science and technology, including defence science, and means for improving efficiency in the use of resources.*
- (4) The relative importance of efforts in those fields of science and technology which may contribute to national economic and social development and welfare and to the advancement of scientific knowledge.*
- (5) The effective development and utilisation of scientific and technological manpower.*

As the problems of science involve all areas of government, and are of the highest importance to Australia, ASTEC will report directly to the Prime Minister who will report to Parliament. The Council will be a body of the highest status and greatest independence.

For the purpose of making its inquiries, the Council wishes to receive written submissions on the following matters from interested parties.

- . The constitution and membership of the Council.
- . Relationships between the Council and other relevant organisations, including Government Departments and Agencies.
- . The status of the Council, i.e. should it be a statutory organisation or attached to a Department of State.
- . Staffing arrangements and other matters of modus operandi.
- . Working methods to achieve the Council's objectives.
- . To whom, and by what method, should the Council report.

Submissions should be directed to the Chairman, Interim Australian Science and Technology Council (ASTEC), P.O. Box 52, Canberra, A.C.T. 2600 by 12th August, 1976.

MATTERS REFERRED TO ASTEC FOR CONSIDERATION

	<i>MATTER REFERRED</i>	<i>REFERRED BY</i>	<i>DATE OF REFERRAL</i>	<i>ACTION TAKEN (DATE)</i>
	Consideration of Upper Atmosphere Programme at Woomera as a Civil Science Programme	Department of Prime Minister & Cabinet	October 1976	Comments sent to Department (October 1976)
	Establishment of a National Institute for Atomic Studies	Department of Prime Minister & Cabinet	October 1976	Comments sent to Department (October 1976)
31	Consideration of Draft Proposal to the OECD Committee for Scientific & Technology Policy (CSTP)	Department of Prime Minister & Cabinet	September 1976	Letter sent to Prime Minister (September 1976)
	LANDSAT	Prime Minister	August 1976	Under consideration
	Biological Surveys	Prime Minister	August 1976	Under consideration
	Australian Involvement in F.G.G.E.	Prime Minister	August 1976	Report sent to Prime Minister
	Review of Observatory Facilities	Department of Prime Minister & Cabinet	August 1976	Representations made to Prime Minister (September 1976)

MATTER REFERRED	REFERRED BY	DATE OF REFERRAL	ACTION TAKEN (DATE)
60" Telescope for Siding Spring Observatory	Universities Commission	August 1976	Deferred pending Government's review of observatory facilities
Proposal for chartering the 'Thomas Washington' for an Indian Ocean Research Expedition	Department of Prime Minister & Cabinet	July 1976	Comments sent to Department (July 1976)
Supply and Demand for Chemists in Australia	Vice-Chancellor A.N.U.	January 1976	Deferred
Fellowship Schemes	Minister of the day	November 1975	Deferred
Technology Transfer	Minister of the day	November 1975	No longer applicable
Proposed Programme in Science and Technology Policy Research at the A.N.U.	A.N.U. Advisory Committee on Science & Technology Policy Research	November 1975	Deferred
Linear Electron Accelerator	Vice-Chancellor, University of Melbourne	October 1975	Not applicable to ASTEC

MATTER REFERRED	REFERRED BY	DATE OF REFERRAL	ACTION TAKEN (DATE)
Institutional Arrangements in Government Science:			
(a) Relationship between the (then) Department of Science and Consumer Affairs and the Bureau of Meteorology	Ministerial Committee on Science & Technology	October 1975	No longer applicable
b) Transfer of the Bureau of Meteorology to the (then) Department of Environment	Ministerial Committee on Science & Technology	October 1975	No longer applicable
(c) CSIRO reporting to a dual Ministry	Ministerial Committee on Science & Technology	October 1975	No longer applicable
(d) Role and Organisation of the Bureau of Mineral Resources	Ministerial Committee on Science & Technology	October 1975	No longer applicable
Changes to Industrial Research and Development Grants Act	Ministerial Committee on Science & Technology	September 1975	No longer applicable

MATTER REFERRED	REFERRED BY	DATE OF REFERRAL	ACTION TAKEN (DATE)
Technology Assessment	Department of Science and Consumer Affairs	September 1975	Deferred
Transfer of Bureau of Meteorology to Albury/Wodonga	Minister of the day	September 1975	Report sent to Minister (September 1975)
Synthesis Telescope	Steering Committee of A.N.U., The University of Sydney, the University of Tasmania & CSIRO	September 1975	Deferred pending Government's review of observatory facilities
Permissible Level of Mercury Content in Fish	Minister of the day	August 1975	Report sent to Minister (September 1975)
Export of Insects	Minister of the day	August 1975	Report sent to Minister (September 1975)
High Voltage Electron Microscope	Minister of the day	August 1975	Deferred
Stratospheric Monitoring and Research	Minister of the day	August 1975	Deferred
Stellar Interferometer	Minister of the day	August 1975	Report sent to Minister (September 1975)

<i>MATTER REFERRED</i>	<i>REFERRED BY</i>	<i>DATE OF REFERRAL</i>	<i>ACTION TAKEN (DATE)</i>
Genetic Engineering	Australian Academy of Science	August 1975	Recommendation sent to Minister (September 1975)
Nuclear Physics Facilities	Several bodies	July 1975	Deferred

THE SUBMISSIONS

A1.1 BACKGROUND

A1.1.1 The Interim Council advertised in the national press in June 1976 inviting submissions on the form which a permanent council should take. The advertisement issued is at Attachment 3. Responses on the issues addressed in the advertisement are summarised in turn in Sections A1.2 to A1.8 below. For convenience, a brief summary of the major opinions is presented at the end of each of these Sections, and tabulated in Table 1 below.

A1.1.2 In total, 105 submissions were received in response to the advertisement. At the time of preparation of this report, 101 submissions were available for analysis. A classification of the origins of submissions is shown in Table 2 below. Sufficient submissions were received to conclude that, taken as a whole, they are substantially representative of scientific and technological opinion in Australia. With this in mind, it is particularly significant to note that all submissions accepted the need for the establishment of an independent, high-level science advisory body.

A1.1.3 As was expected, the submissions not only considered the matters specifically mentioned in the advertisement, but also canvassed a wide range of background issues and opinions on science and technology in Australia. Some significant general themes emerged from this background, and these are summarised later in this Appendix.

A1.2 CONSTITUTION AND MEMBERSHIP OF THE COUNCIL

A1.2.1 The most significant trend in submissions on the composition of the Council was that it be representative of as wide as possible a range of scientific and technological interests. As expected, a wide range of interests advocated their representation on Council. Within this, significant numbers of submissions saw the need for adequate representation of technology and of applied science, such as research and development in industry.

A1.2.2 Representation on the Council of younger scientists was promoted, particularly those still active in research or development. It was argued that this would provide the Council with a wider perspective, and maintain the high status of the Council among scientists 'at the workface'. Similarly, involvement of staff associations or trade unions was advocated.

A1.2.3 There was a strong trend towards term appointment for members of the Council, with 3 to 5 years being the most favoured term, and rotational retirement and limited reappointment favoured. This would ensure continuity in the Council, while meeting the need for occasional variation in the Council's emphasis, and injection of new ideas. A five-year term appointment was popularly advocated for the Chairman. Part-time service of Council members was generally favoured.

A1.2.4 Most submissions supported the appointment of a full-time Chairman with public service Permanent Head powers, it being argued that this would be necessary to meet the responsibilities of interaction with the Government, the bureaucracy, and the wide range of other interested groups. In some cases, the appointment of a deputy Chairman was advocated as a means of aiding the Chairman in his workload.

A1.2.5 A Council size range of 12 to 15 was most favoured. This size was seen as large enough to allow a reasonable coverage of all major areas of science and technology, while remaining small enough to be easily supported administratively and manageable in meetings.

Advocates of a larger Council (up to 20 to 30 members) pointed to the need to cover all relevant disciplines, and to ensure that the collective opinion of the Council was representative of the field as a whole.

Al.2.6 Submissions strongly favoured appointment of members in a personal rather than a representative capacity, in order to ensure independence of the Council. In some cases a compromise position was suggested, with the majority of Council being appointed in a personal capacity, and a few Councillors appointed ex officio from the major bodies involved in science administration and funding. This was seen as ensuring co-ordination between the Council and these bodies.

Al.2.7 In summary, opinion favoured a broadly based Council of 12 to 15 members, serving part time and in a personal capacity, for three-year terms. The Chairman should serve full time for a five-year term, with Permanent Head powers and status.

Al.3 THE ROLE AND POWERS OF THE COUNCIL

Al.3.1 Of the submissions which dealt explicitly with ASTEC's role, the large majority saw the Council as an advisory, rather than an executive, body. A few submissions suggested further that the Council should have certain powers to ensure that its policy advice would be translated into an appropriate allocation of resources. Fund-allocating power was the most commonly suggested method of ensuring this. Public Service departments generally agreed that ASTEC should not have funding powers, but should provide advice to those responsible for allocation of funds.

Al.3.2 Submissions generally saw ASTEC as having the power and authority to conduct investigations and undertake work programmes on its own initiative. This was regarded as a necessary consequence of, and a safeguard for, the Council's independence.

Al.3.3 The extent of Council involvement in certain specialised or peripheral areas of application of science, particularly defence, social, and health

science, was canvassed explicitly in only a few submissions. In particular, the need for the Council to evaluate the social impacts of science and technology was advocated, it usually being suggested that social science be represented by Council membership as a method of effecting this.

Al.3.4 Representative of argument in favour of limiting the Council's scope, the Secretary of the Department of Defence submitted that ASTEC was not qualified to concern itself with the balance, adequacy or emphasis of science and technology in the defence area, but should rather concentrate on those aspects of defence activity which have a lateral bearing on the civil programme, in order to avoid duplication and facilitate rationalisation. Similarly, the Royal Australian College of Surgeons alone argued that the special nature of health science meant that it should be excluded from Council consideration.

Al.3.5 On the whole, the general consensus of the submissions was that the Council should play an advisory role, and that the scope of the Council's deliberations should incorporate the widest possible range of scientific and technological disciplines and applications, in concert with the Council's broad objectives.

Al.4 RELATIONSHIPS WITH OTHER ORGANISATIONS

Al.4.1 Most submissions agreed that if ASTEC were to carry out its policy advising and co-ordinating role effectively, it would need to be able to seek and obtain inputs from a wide range of government and other sources in the form of facts, analysis, policy, opinion and prediction.

Al.4.2 Opinion was divided on the methods by which this information should be obtained. Some submissions advocated the vestment in the Council of formal powers to gain information, particularly from government agencies. Others, however, favoured a more informal, co-operative approach in this area. It was argued that a Council with a distinguished, broadly based member-

ship which was seen to be open, consultative, objective and independent in its operations would soon gain the respect and influence necessary to ensure co-operation.

Al.4.3 Several industry and professional associations offered themselves as points of contact for the Council on particular topics within their ambit. This offer usually included the willingness to volunteer information, and in some cases the services of expert personnel, to aid the Council in its operations.

Al.4.4 Submissions generally saw the need for close liaison with the widest possible range of agencies with scientific and technological interests, although diverse opinions were expressed on the formalisation of these relationships.

Al.5 THE STATUS OF THE COUNCIL

Al.5.1 A large majority of submissions commented on the Council's status, with a very substantial majority of these favouring the Council being a statutory body. The main reason quoted in support of statutory status was the need to ensure the independence of the Council. Independence was seen as necessary to maintain the quality of the Council's advice, free of short-term fluctuations in opinion and influence.

Al.5.2 The major subsidiary reasons proposed in favour of a statutory Council were the importance of ensuring its high status and of facilitating its relations with other bodies. On this latter point, some submissions suggested that relationships with non-government bodies would be easier if the Council were seen as separate from the Public Service departmental structure. Another reason proffered in support of statutory status was the ease of staffing the Council's secretariat outside the regulations and restrictions of the Public Service Act. (See Section Al.6).

Al.5.3 Those submissions which addressed the issue of administrative location for a non-statutory Council were (with the notable exceptions of the Minister for Science and his Department) strongly opposed to attach-

ment to any department with an executive responsibility in science or technology. Such a location was seen as inimical to the Council's status and independence.

Al.5.4 In summary, opinion strongly favoured a statutory Council as a basis for independence, status and relationships with other bodies. Whether statutory or not, the majority view was that the Council should not be attached to any Ministry with executive responsibility for science or technology.

Al.6 STAFFING ARRANGEMENTS AND THE SECRETARIAT

Al.6.1 The strongest trend among those submissions which dealt in any detail with staffing arrangements for the Council was that the secretariat should be small, and should concentrate only on the central tasks necessary to the smooth running of the Council. These would include the preparation of Council papers and reports, the servicing of working parties formed by Council, the organisation (but not the conduct) of background research and data gathering, and analytical studies. It was generally suggested that any such background research, for example in support of a working party, should be undertaken by specialists from appropriate sectors of the scientific community on secondment to the secretariat for short periods.

Al.6.2 With regard to the personal qualities of the secretariat, it was generally proposed that it should possess a mixture of administrative and scientific skills. This would ensure quality in communication with the bureaucracy and others, and that the necessarily technical topics considered by the Council would be understood by the secretariat in its supporting and servicing role. In general it was suggested that term, rather than permanent, employment should apply to the secretariat.

Al.6.3 Those opposed to Public Service Act staffing of the secretariat pointed to the need to recruit widely and to offer attractive salaries to guarantee the quality and independence of the staff. The Public Service Board, on the other hand, opposed statutory

status for the Council mainly because of staffing considerations, and pointed to a number of factors which it perceived as being in favour of Public Service Act staffing and against the Council's possessing statutory powers over its staff.

Al.6.4 The consensus of opinion was, in brief, that the Council should employ a small secretariat to support its operations, using secondments to supply expertise as needed in particular areas. Opinion was divided over whether the secretariat should be employed under the Public Service Act.

Al.7 WORKING METHODS

Al.7.1 Submissions advocated the need for the Council to establish working parties or task forces to conduct investigations and other specific programmes. Secondment of experts from areas not directly represented on the Council was also favoured as this would help to inject independent views and advice into Council deliberations while keeping the membership within bounds.

Al.7.2 The letting of contracts, or the engagement of consultants, to undertake research projects under Council direction was also suggested as a possible modus operandi. In support of this it was argued that 'farming out' background work was a necessary corollary to a small secretariat.

Al.7.3 Many submissions argued that the functions of working parties would remain incomplete unless they were subject to the widest possible input and scrutiny. This would involve publicity: methods suggested for ensuring this included the conduct of public hearing, advertising for submissions on particular topics, and the publication of reports.

Al.7.4 To summarise, the use of working parties incorporating outside expertise was the most favoured method of Council operation. Publicity was considered to be necessary to ensure completeness of working party operations. Consultants should be engaged to conduct background research.

Al.8 REPORTING ARRANGEMENTS

Al.8.1 The majority of submissions favoured the Council's reporting to the Prime Minister in order to ensure independence from any Minister or department with an executive responsibility for science. Minority opinion favoured responsibility to a committee of Ministers with portfolio interests in science or technology (usually to be chaired by the Prime Minister), Cabinet (usually through the Prime Minister), or the Minister for Science.

Al.8.2 It was occasionally argued that, apart from this formal line of responsibility, there was a need for a close working relationship between the Council (through its Chairman) and the Prime Minister. This was seen as necessary to the definition of the interaction between science and technology and national goals and objectives, and to the setting of priorities.

Al.8.3 Many submissions canvassed a more general question connected with reporting, namely the issue of public access to the Council's reports and deliberations. A variety of methods was suggested for promoting public access, the most popular being the publication of an annual report, usually for presentation to Parliament. The use of 'green papers' on major issues and the publication of working group reports were also favoured.

Al.8.4 Some submissions suggested that all Council reports should automatically become public while others recognised that confidentiality would be necessary on some issues. The availability of Council Agendas and Minutes and open Council meetings were also proposed in a few submissions.

Al.8.5 To summarise, most submissions advocated that the Council should report to, and maintain a close working relationship with, the Prime Minister. Council operations should be as open as possible and should be reported in Green Papers, Annual Reports and other publications.

Al.9 BACKGROUND ISSUES

Al.9.1 Some of the background issues raised in submissions have been touched upon in dealing with the specific issues above; the following points are noted in addition.

Al.9.2 Technology and Industrial Research and Development. Many submissions noted a perceived imbalance between pure scientific research and applied technological or industrial research and development. It was particularly pointed out that the latter was in need of greater recognition and funding. Technological independence, and the development of a 'native technology' attuned to Australian problems, conditions and resources were seen as desirable goals for industrial research and development policy.

Al.9.3 It was also noted that attention needed to be given to the process of converting pure research into industrial products and processes. A suggested first step in this direction was that there should be significant representation of industrial technological interests on the Council.

Al.9.4 Non-University Tertiary Bodies. A significant number of submissions was received from Colleges of Advanced Education and Institutes of Technology, pointing out that they should not be overlooked for the provision of members and points of reference for the Council. The interest of these bodies in technological and industrial research, and the training of manpower in these areas, were seen as being of direct pertinence to the Council.

TABLE 1

SUMMARY TABLE ON SPECIFIC ISSUES

This table lists the number of submissions clearly favouring the course of action indicated under the heading 'Topic'.

<i>TOPIC</i>	<i>Number of Submissions</i>
<i>Membership Structure</i>	
<u>Number of Members</u>	
Up to 8	4
9 - 12	8
13 - 15	12
Over 15	7
<u>Term of Appointment</u>	
Up to 3 years	18
4 - 5 years	3
Over 5 years	4
<u>Appointed as</u>	
Representatives	11
In personal capacity	33
<u>Chairman</u>	
Full time	32
Part time	2
<i>Role and Powers</i>	
<u>Council to be</u>	
purely advisory	47
advisory, with executive 'backup' powers	5
<u>Authority to act on own initiative</u>	16

<i>Relationship with other bodies</i>	
Formal (Statute or Cabinet Decision)	11
Informal	9

<i>Status of Council</i>	
Statutory Body	51
Attached to Department of State	11

<i>Secretariat</i>	
<u>Size of Secretariat</u>	
Small (up to 12)	26
Large	2
<u>Appointment to be</u>	
Term	12
Permanent	7
<u>Employed under Public Service Act</u>	
Yes	9
No	11

<i>Working Methods</i>	
<u>Use of</u>	
Consultants	23
Task Forces	44
Secondments	21

Reporting Arrangements

Reporting to

Prime Minister	46
Ministerial Committee	6
Cabinet	3
Minister for Science	2
Other	4

Degree of publicity of reports

Fully public	18
Subject to security, or clearance by responsible Minister	10
Confidential	7

TABLE 2

ORIGIN OF SUBMISSIONS

CATEGORY		No. Submissions	
1.	Private Individuals	. Academics - University	16
		- Other Tertiary	4
		. Government	7
		. Industry	4
		. Miscellaneous/Unclassified	14
			45
2.	Professional, Industry or Staff Association	. Professional	8
		. Industry	8
		. Staff - Academic	4
		- Government	4
		- Other	2
		. Academy	2
		. Other	3
			31
3.	Government Body	. Commonwealth - Statutory Authority	5
		- Department	5
		- Other	1
		. State	2
			13
4.	Private Enterprise Firm		6
			6
5.	Tertiary Education Institution	. University	3
		. Other	3
			6
6.	Grand Total		101

BACKGROUND OF ORIGINATORS OF SUBMISSIONS

Many submissions either gave no indication of the scientific or technological discipline or area of operations of their originators, or indicated that this background was too wide to be classified (e.g. covered the whole of science and/or technology, or was described by some general term such as 'research'). It is interesting, however, to classify the subject-matter backgrounds of the submissions which can be identified and this is done below under very general headings.

<u>Discipline/Industry</u>	<u>No. Submissions Received</u>
Engineering	10
Physics/Applied Physics	5
Chemistry/Chemical Industry	5
Earth Sciences/Mining	4
Medicine/Health Science	5
Agriculture/Food Processing	4
Building/Architecture	4
Electronics/Communications	3
Metallurgy/Metals Industry	3
Water Supply/Treatment	2
Atomic Energy	2
Education	3
Politics	2
Economics	1
Transport	2

Approximately 11% of the classified submissions originated with the social sciences, almost all the remainder coming from natural science or its applications; among these 68% of the classified submissions came from practitioners in the physical sciences or their applications, while 16% were from the life sciences. The remaining 5% cannot readily be classified.